

7. Lastly, *Nycticejus nivicolus* Hodgs. is said by Dr. Horsfield (loc. cit. p. 395) to be from Nepal. I am not certain as to what this species really is; it is possibly *Harpyiocephalus harpia*, before mentioned, but, whatever it may be, Hodgson did not get it in Nepal. The correct locality for the type is, "Sikkim Himalaya, northern region, near snow" (Gray, Cat. Hodgson's Coll. 1863, p. 3).

Considering that the list of Nepal bats is a short one, the number of errors that have collected about it is more than usually large.

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XVIII.—*Notes on some recent Neolithic and Palæolithic Finds in South India.*—By R. BRUCE FOOTE, F. G. S., Superintendent of the Geological Survey of India, Fellow of the University of Madras.—Communicated by THE SUPERINTENDENT OF THE INDIAN MUSEUM.

[Received and Read August 3rd, 1887.]

(With a Map—Pl. XI.)

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§ 1. So many communications have been made to this Society on the subject of prehistoric stone implements of various ages, discovered in different parts of India and its dependencies, that I should hesitate

before making a further one, did I not believe that I have really fresh matter of great interest to lay before you, having during the last few years made various finds which determine the age of a hitherto uncertain group of remains, and throw light on the connection of the Neolithic and Iron periods. The mere discovery of important centres of manufacture of Neolithic or polished stone implements is by itself a point of great interest, and I have the pleasure of informing you of the discovery of several centres of the kind.

Most archæologists regard it as a well-established fact that our ancestors, to speak of mankind generally, passed through at least three, and in some countries four, grades of progressive civilization indicated by the character and material of their weapons and domestic implements.

In South India, up to the present day, three of these grades, or periods, are known to have been passed through by the old inhabitants; the Rude Stone Period, the Polished Stone Period, and the Iron Period. A Bronze or Copper Period has not, so far, been traced in the south, and iron had been introduced among the people living in the Southern Deccan, and was probably manufactured by them at the same time that they were still using and making implements of polished stone.

I have used the terms Palæolithic and Neolithic not only because they are extremely convenient, but because, so far as South India is concerned, they are, so far as our present knowledge goes, very fit and suitable terms. Abundant geological evidence exists in the south that a great period of time elapsed between the era of the old Stone-chippers and that of the Stone-polishers.

Whether the latter were descendants of the former is at present impossible to say, for no evidence has been yet found to prove or disprove the idea.

§ 2. The former existence of the old Stone-chippers in South India was unknown till 1863, when I had the good fortune to discover the first chipped implement in a lateritic gravel at Palaveram a few miles south of Madras. A few months later, Dr. King and I had the further good fortune to come upon another lateritic gravel some forty miles north-west of Madras, where implements, all made of quartzite, occurred *in situ* and abundantly. A fine series of these, including many of the type specimens figured in my papers in the Madras Literary Society's Journal and the volume of the Norwich Prehistoric Congress (1868), is now in the Indian Museum.

At that time, no discovery of Neolithic or polished implements had been published, nor, so far as I know, had any been made, and it fell to me to make the first discovery of such during the course of the follow-

ing year, 1864. This find (a ring-stone) was noticed in my paper on the Palæolithic implements published in the Madras Journal of Literature, and is now in the Indian Museum. Not very long after, I found a good celt near the Arconum junction of the Madras Railway, which was also recorded in the same paper.

In 1865, it became known that celts of diverse shapes and sizes and in large numbers were to be seen in little shrines, or stuck up on end round the foot of sacred trees, close to many of the temples on the Shevaroy hills in Salem District. Considerable numbers of these were procured, and some found their way into the British Museum, but, so far as I know, nothing was published about them. In the same year, I found a small, but very well made, celt about eleven miles south of Nellore.

A solitary celt was reported as found on a hill near Mercara in Coorg, and the find, which was communicated to this Society in 1868 by Mr. H. A. Mangles, has repeatedly been quoted by various writers, Mr. W. T. Blanford, Mr. V. Ball, and Mr. John Cockburn amongst them, as the first made in South India, my Arconum celt being ignored, though published in 1865.

§ 3. The next Neolithic discovery in the south was made by the late Mr. William Fraser, M. I. C. E., about 1872, when he was District Engineer of Bellary. I first heard of his discovery from himself towards the end of that year. He had found numerous celts and chisels in various stages of manufacture and use, together with corn-crushers and mealing-stones, and much broken antique pottery on two hills, the North Hill at Bellary and the Peacock Hill five miles to the north-east. Mr. Fraser very kindly took me to both hills, and afforded me the pleasure of finding some specimens for myself, to which he added a few more from his own small but choice collection.

On taking leave of him, I urged him strongly to communicate his discovery to some scientific society, which he promised to do, but unfortunately never did. He died suddenly a few months later, and his collection of celts was lost, probably thrown away in ignorance of its value. It included some good celts and several remarkably good specimens of the long narrow chisel type, a form which, so far as I know, has not yet been found in other parts of India.

On my way from Bellary to Gadak, I passed a notable conical mound of slaggy cinders which stands in the middle of a small pass, the Budi Kanama, across a line of hills about sixteen miles west of Bellary, and has been described several times by various writers many years ago, among them by no less excellent an observer than the late Captain Newbold. It has been held to be of volcanic origin, and the natives



regard it as the funereal mound of some great Rakshas or demon. I had only a few minutes to devote to looking over it, as I was on the march and much pressed for time. Brief as my search was, I found one celt and some mealing-stones and corn-crushers in the little rain-gullies cut in the sides of the mound, and on several lumps of slag found the impressions of stalks of coarse straw; this sufficed to disprove the volcanic cone theory, so I went on. At Hampasagra, sixty miles west of Bellary, I found a good celt lying on the top of the bank of the Tungabhadra. In the South Mahratta country, I had made a few good finds in the two previous years, the best being some seven or eight good celts of medium size on the top of a small hill fifteen miles south-west of Kaladgi. I did not publish any separate notice of these finds beyond a brief reference to them in a letter to the Geological Magazine, in which I also drew attention to Mr. Fraser's discovery. This letter appeared in April 1873. Some of these (with my Bellary specimens and a very fine collection of Palæolithic implements that I discovered in fluviatile gravels in the banks and beds of the Malprabha river and its main southern affluent, the Benihalla), I exhibited at the Vienna International Exhibition in 1873. My collection was much admired by the Austrian archæologists, and I was strongly pressed to sell it, but declined, and afterwards presented it to the Geological Survey Museum, to which it was sent from Vienna. In 1882, it was made over to the Archæological section of the Indian Museum, together with all the other collections of Palæolithic and Neolithic implements.

§ 4. Among the number of those who saw and examined my specimens in the Vienna Exhibition was Mr. Valentine Ball, then of the Geological Survey of India, a gentleman who had made various communications to this Society on the subject of stone implements in India. In 1878, Mr. Ball read a paper before the Royal Irish Academy, with elaborate tables showing the distribution, in India, Burmah, and parts of the Indian Archipelago, of stone implements of all kinds. Mr. Ball forgot my Bellary specimens, overlooked my letter to the Geological Magazine, and ignored the various references to Neolithic finds made in my various papers on Stone Implements in South India. The Shevaroy hill celts he had not heard of, and he assumed Mr. Mangles' Coorg celt to be the only Neolithic implement ever found in South India. On this very slender foundation, Mr. Ball built up a decidedly bold, if not hazardous, theory that the occurrence of polished celts only in the north-eastern quarter of India and in Burmah, of only chipped implements in the southern half of India, and of only cores and flakes in the north-western quarter of the country, was due to the different implements having been made by different races of men occupying these



three distinct provinces, which met and slightly overlapped each other in Central India. Here and there, it was true, a few implements characteristic of one province occurred well within the limits of another, but such an occurrence was to be treated as what is geologically termed an "outlier", and held not to affect the general validity of the theory. Mr. Ball rejected the terms Neolithic and Palæolithic for India as conveying erroneous ideas of progression. He says in the paper referred to, "The different forms of implements seem to be rather indices of race than time." The early inhabitants of South India, according to this theory, attained only to a much lower platform of civilization than did those of North-eastern India.\* While passing his paper through the press, Mr. Ball became acquainted with the collection of Shevaroy hills celts in the British Museum, which seems to have staggered him somewhat, but he still stuck to his theory and merely added a note in the press to this effect: "If the locality" (the Shevaroy hills) "is authentic, we have another instance of an outlier. Such exceptions to the main features of distribution will possibly be from time to time discovered, but they must become very numerous before they can be considered to outweigh the facts upon which the general conclusions in this paper have been founded."

Mr. Ball's paper remained unknown to me for more than six years after its publication, else I should have written at once to show how ill-founded it was, in view even of the knowledge of Neolithic remains then existing. When I did become acquainted with it, rather more than three years ago, I was making almost daily fresh discoveries of Neolithic remains in the South, and had not time to write a paper in reply, but mentioned it in a letter to Dr. John Evans, F. R. S., the greatest living authority on stone implements, and he communicated this letter and some others about my new finds to the Anthropological Society, in whose Journal for August 1886 an abstract of them was published.

§ 5. The Shevaroy Hill celts constituted the earliest Neolithic find made south of the latitude of Madras, and twelve years elapsed before any further discoveries were made in that direction. In 1878, I found the cutting half of a small celt at Uta Kovil four miles north-east from Arrizur in Trichinopoly District. Tanjore District yielded no Neolithic implements, and Madura District was also very unprolific, the only specimens found being two chert cores and a chert flake with a serrated edge formed by 7 consecutive small notches in close apposition. These were found on the surface of gravels of very recent formation.

\* The question of the distinctness of the two stone ages will be referred to again later.

Of uncertain age, but probably Neolithic, is a carved bone pendant that I obtained in 1883 out of the mud of a very interesting submerged forest at the west end of Valimukkam Bay on the south coast of the Ramnad zamindari. This is the only piece of worked bone that I know of as having been found in South India, excepting some cut bones discovered in the ossiferous caves of Billa Surgam in Karnul District. The pendant was in all probability used as an ear ornament. It is pierced at the thinner end by a small well-drilled hole, and shows four incised lines going clean round it, one a little below the perforation, the other about  $\frac{1}{4}$ " above the round, thicker (lower) end. It was probably well-polished, and, though weathered, is still smooth enough to be rather glossy. I had hoped to find much of value in the Valimukkam submerged forest, my first visit of a few minutes duration having given me the bone pendant, but, on re-visiting it last year, I found that the action of a small river which opens into the bay close by, combined with a heavy surf, had covered over the greater part of the old forest area with a broad sandbank, while the surf had removed a large number of the old tree stumps which had been visible at low tide at the time of my first visit. I had a long tramp about over the peaty mud flat still remaining, but found nothing more than a piece of old pottery too much rolled to show its real character.

At my first visit to Cape Comorin in 1869, I was struck by the large consumption of shellfish made by the fisher-folk living in the coast villages, speculating that their ancestors might have had similar tastes, and I hoped that an examination of the coast would show the existence of middens, such as proved so wonderfully rich in prehistoric remains on the coasts of Jutland and Schleswig. In 1881, 1882, and 1883, I carried out the geological survey of South Travancore, Tinnevely, and Madura, but unfortunately found no true kitchenmiddens, and fear that none will be found there, for my work, though not absolutely exhaustive, was very close in many places where such remains might have been expected. The remains of shellfish, chiefly of a large species of *Mytilus*, lie about in great quantities in many places near the coast and, here and there, at places far inland, but they do not occur in sufficiently great accumulations to deserve the name of middens, or to hide any prehistoric remains.

The Neolithic remains I obtained in Tinnevely (in 1883) were cores and flakes of a chert foreign to that part of the country. They were found at the south end of the red sandhills forming the "teri" west of Sawyerpuram, a well-known station of the Gospel Propagation Society's Mission, eleven miles south-west of Tutikorin. The south end of the teri had been largely denuded by wind action, which had removed the fixed red sand

to a depth of 15 or 16 feet, and exposed a dark red surface of hard sandy loam over an area of several acres. On this surface, I noticed some flakes of a brown chert I had seen nowhere in the South, and these flakes led me to search closer, and I soon found several well-made cores of the Jabalpur type. With the chert flakes were a few of limpid quartz, also a foreign stone in that immediate neighbourhood. A number of fragments, mostly small, of antique red pottery accompanied the chert implements and showed strong signs of having had their edges much worn by the action of "sand blast" at some previous time when the *teri*\* was in a moving condition.

The northern part of the Carnatic had previously yielded me a few Neolithic implements, a small but perfect celt eleven miles south of Nellore (1865) and half of a large ring-stone the drilling of which had never been quite completed. This ring-stone, or perforated hammer, was found in 1875 at Vemavaram ten miles north-east of Ongoe and close to the northern boundary of Nellore district.

Some four miles to the east of the famous Amravati tope, I found (close to the village of Vayikunthipuram, on the south bank of the Kistna) what appears to be the body of a good-sized celt minus the cutting edge. This was made of a buff and purple mottled sandstone of upper Gondwana age. The only other implement made of this material was a cylindrical fragment (wanting both ends) of doubtful use, unless it may be regarded as part of a prehistoric "rolling pin." This I got on the site of a Neolithic settlement at Jerlacherru, nine miles W. of Kammamet in the Nizam's territory. The settlement had existed between two granite-gneiss hills, and the fields all round were covered thickly with fragments of high class antique pottery. I could only mourn the hard fate which denied me time to examine this very promising locality.

Another Neolithic site, on the left bank of the Umni-ern, 3 or 4 miles south of Kammamet, that I could only pass by on the march looked also very promising.

I must not forget to mention that I picked up the pointed end of a celt just south of the village of Matur, 27 miles south-east of Kammamet.

Proceeding westward, I came across a small hill of granite-gneiss south of Poolloygooda (21 miles east by south of Bonagiri), where were a considerable number of highly polished deep grooves worn into the hard rock. From their shape and size, I inferred they must have been

\* *Teri* is the name given by the Tamil people exclusively to the great drifts of red sand which form so remarkable a feature along the eastern side of Tiinnevely District.



made in grinding the cutting edges of celts, and my inference has since been confirmed by finding similar polished grooves on granitoid hills in the Bellary country which were great centres of the celt manufacture. The grooves were about 10 to 14 inches long, about  $1\frac{1}{2}$  wide in the middle, and tapered off to a sharp point at either end. The greatest depth of the groove was at the centre and varied from  $1\frac{1}{2}$  to nearly 2 inches. The polish was best preserved in the grooves that had been filled up with soil washed in by rain.

A few miles west of this place, I came on a large dyke of very fine grained greenstone, the surface of the western end of which, near the village of Arur, had been considerably broken up and yet showed no signs of ordinary quarry work; a large quantity of débris of an uncommon character lay about, which struck me as having possibly been produced in the manufacture of stone implements; some of the fragments being very shapely flakes. A few minutes' search gave me a well-shaped celt in the first or rough stage. Further search would I feel sure have produced more evidence as to this having been a celt factory, but I had not the time to spare for it.

§. 7. In October 1883, I had the pleasure of making a very interesting find at Pátpád, a small village 4 miles west of Banaganpalli, in Karnul District. The spot on which the find was made is a piece of slightly irregular ground, triangular in shape, and enclosed between the high road, the end of a small limestone ridge, and a small stream which runs south-east into the Suru river, a confluent of the Perneru, or Northern Pinakini. Near the centre of the ground, I noticed a few fragments of bright red antique pottery sticking in the sides of a tiny rain-gully. Being greatly taken up with excavations in a large cave some distance off, I thought no more about them; but, a few days later, having found some interesting prehistoric pottery at some depth in excavating in one of the passages of my cave, and taken a great deal of trouble in getting all the pieces and sticking them together, my head servant, a bright and observant little Madrassee, excavated some of the broken pottery I had seen in the rain-gully just referred to and pieced it together into a very shapely bowl. After that, he dug over several square yards of the adjacent ground, under my superintendence, and we unearthed a considerable number of articles of pottery of various shapes and sizes, but all broken more or less. They were buried only 5 or 6 inches below the surface, and the place where they lay was just in the regular track of the village cattle to their drinking place and thus crossed every day several times by large herds. The wonder was everything had not been reduced to powder.

The different vessels found are mostly of admirable shape, several

of them really elegant. They are of the typical glazed red and black earthen-ware so characteristic of the prehistoric graves of Coimbatore and the Nilgiris. Two forms are, so far as I know, peculiar to that find, the one is like a flower-pot with an extremely small base, the other is conical with slightly excavated sides and no base, so that it must have been perched on a ring-stand when in use, and not held in the hand. Several such rings fitted for larger vessels were found there. In the soil which had filled some of the vessels, I found several good agate and chert cores, and a few iron implements of (with one exception) small size; long arrow-heads with strong barbs, one of which is now in the Indian Museum collection, and other forms. With these were several green-stone corn-crushers, a large stone pestle with polished sides, and a highly polished slyking-stone, or slickstone, made of a hornblendic rock. There were also a small number of point bones too much broken to identify. In addition, I found a small white bead made out of some shell, a human premolar, a shell-scraper made by grinding away the lower half of one valve of a unio shell, and, lastly, a pottery spindle-whorl. The surface of the ground a few yards to the east, which was freely scattered over with broken antique pottery, yielded a good number of agate and chert cores and flakes, all of the Jabalpur type, also a variety of larger flakes, and several small but well worked scrapers. One of these latter is an exact match to an old flint scraper from Yorkshire which I have in my collection. A large quantity of mostly bright-coloured pieces of chert, agate, jasper, quartzite, and lydian stone was also collected on the same bit of ground; having doubtless been brought there to be used in making flakes; all these stones are foreign to that immediate neighbourhood, and the agates and lydian stones must have come from a distance of 40 miles at the very least. Some of the pottery found in the Yerizari-gabbi (cave) is ornamented in precisely the same way as the large fragment of a pot (found lately at Quetta together with a very fine ringstone and a jasper corn-crusher) which Mr. Wood-Mason is exhibiting to-night.\* No celts were found at Pátpád, but I got a broken cylindrical hammer on the path leading to the Yerrazari-gabbi, and, as I shall show presently, cores and flakes and the prehistoric red and black glazed pottery occur largely, together with celts and a variety of other typical Neolithic implements, in various places to the west of Pátpád; such being the case, I do not hesitate in regarding the Pátpád find as late Neolithic overlapping into the Iron Age. The whole find was pre-

\* Pottery with the same peculiar ornament has also been found on the North Hill Bellary and at Palavaram close to Madras.—Identically the same ornament appears also on pottery figured by Sir William Dawson from the old Red Indian city of Hochelagas in Canada.

sumably a cache rather than a burying place. A very fine chert flake, with an excellent core of the same material, was found at Paspalla, a village some 9 miles west of Pátpád.

§ 8. I come now to the most interesting and important part of my subject, the occurrence of numerous Neolithic settlements in the Bellary-Anantapur country, to which I proceeded at the end of 1884 to take up the geological survey of that region. Ever since my expeditions with Mr. Fraser to the North Hill and the Peacock Hill, I had been longing to revisit that quarter, and my desire had been much increased by my great find at Pátpád.

I was most anxious also to settle if possible the real nature of the great cinder-mound at Budikanava which I have already referred to above.

I revisited the North-hill at Bellary with much success and initiated a friend, Mr. Justin Boys, the Agent of the Madras Branch Bank at Bellary, into the delights of celt-hunting, which he has since followed up with a very satisfactory result, namely, the discovery that the north and east sides of the Bellary Fort Hill were also at one time inhabited by the Stone-folk.

At the first possible opportunity, I revisited the Peacock Hill, or Kappallu as it is called by the country people. Mr. Fraser had taken me up and about the southern side of Kappal, and we had secured but a small quantity of implements, mostly celts and chisels, but noticed no special signs of manufacture. On my second visit, I explored the whole hill, and, on the northern side, near the summit, found abundant traces of the manufacture of implements and of the residence of the manufacturers. Kappal had evidently been a settlement of the Stone-folk for a considerable period and an important centre of celt manufacture. The traces of residence were very numerous in the shape of small terraces revetted with rough stone walls, great accumulations of made ground full of ashes and broken pottery and containing many implements of all sorts, a large proportion of them damaged, many so much so that they had evidently been rejected as useless. Bones of bullocks, chiefly broken, occur pretty numerous and especially in the ashy parts of the made ground. Other traces of residence were small tanks made by damming up the little stream which drained the northern side of the ridge. Large blocks of the local granite-gneiss had been hollowed for some purpose or other and so well worn by use, or purposefully fine-tooled, that their inner surface was all but polished. A number of these had evidently stood close to the structures that I assume to have been tanks. Some still remain there as if ready for use, but many have been broken, and their fragments lie close by. These block-



troughs were not deep enough to hold any quantity of water, but may very likely have been used for mixing some kind of dough, for which they were very well adapted. A few blocks showed very shallow hollows, and such hollows are very common on rock surfaces, both in the open and under rock-shelters. Some of these I believe to have been mealing-troughs in which the grain the people used was finely mealed with mealing-stones after having been roughly bruised with smaller and lighter corn-crushers. Both of these kinds of implements are met with in great numbers here and in almost every one of the many settlements of the folk that I examined in the Bellary-Anantapur country, and are especially numerous where great accumulations of ashes and other kitchen stuff are met with.

The signs of manufacture of implements I found on Kapgal consisted of large numbers of unfinished celts in all possible states of completion and great quantities of flakes struck off from the selected fragments of rock in the process of fabrication. In the case of Kapgal settlement, the stone to be worked was procurable on the hill. It is a fine grained pale greenstone (diorite?), which occurs here and there in irregular bands of some thickness within the mass of a huge dyke of coarse black diorite that runs along the northern slope of the hill parallel with its axis. In other settlements, the celts were found to be made from pieces of greenstone of convenient shape collected from dykes which in many cases occurred only at considerable distances; and, in these cases, the makers often worked up pieces whose exterior was greatly pitted by weather action and did not take the trouble to remove the weathered part except where the cutting edge was made. In some few instances, pebbles were selected and so chipped as to utilize one or other of them naturally. At Kapgal, this was not the case, and consequently the celts there found have a much more recent look than those from many of the other settlements.

There is a great variety also in size and shape among the celts and chisels, especially the former. This was doubtless intentional to suit special purposes, but to some extent the makers evidently accommodated themselves to the shape of the rough stone selected for treatment. This cannot fail to strike the eye when a large series of the implements is examined. Great differences in skill, in taste, and in patience must have existed among the workers; the beauty of shape and finish of the implements varying so very greatly. Some are really elegant in shape and others downright clumsy. The stages of manufacture through which the more or less carefully chosen rough stones passed were certainly four in number, — chipping and picking, grinding and polishing. The first stage, the chipping, was in all probability done by means of

stone strikers, hammers, in fact, without handles, of which large numbers of all sizes and weights occur in all the settlements in which the manufacture was carried on. In the second stage, the surface of the chipped implement was picked or "pecked" over with a sharp-pointed striker (by which all the little ridges between the numerous chipped out surfaces were broken down and the surface rendered approximately even), and great labour saved to the grinder, who put the implement through the third stage of progress, and gave it a good sharp and even cutting edge. The fourth and final stage consisted in polishing the implement all over.

The grinding and polishing was done by rubbing the implements backwards and forwards on the surface of the granite rocks, or of big blocks, which became worn into the shallow elliptical troughs above referred to, and of which several were met with on the Kapgal hill; on some of the other settlements, these are very numerous and occur in groups where the grinders had sat together sociably over their work. On the Budihal Hill, in Anantapur District, 8 miles south-east of Bellary, are several remarkable groups of these polishing places. They are placed on high rock terraces, regular coigns of vantage commanding good views over the country where the operators could work and watch with great ease. On one rock terrace, twenty are to be seen in a space just 15 yards square. Other polishing troughs are found well under cover of great rock shelters, or in small caves, where perfect shade was obtainable during the heat of the day.

The implements lay about exposed on the surface or partly imbedded in the made ground, and some were found at a depth of 2 or 3 or more feet, where rain-gullies had cut deeply into the made ground. In every case in which I obtained numerous implements, the quantity of broken pottery was also very great, and I hardly ever got the one without the other; and now, whenever I come across fragments of antique black and red pottery, I make a special search for implements, and very rarely fail in finding something of interest.

The most numerous implements are strikers and corn-crushers, next to them numerically come the mealing-stones, then celts and chisels, the last being very rare. Less common than celts, but less rare than chisels, are worked scrapers of the Esquimaux type. Cores and core-flakes are also rare, but I imagine many more would be found, if regular excavations of the made ground of the built, or natural, terraces were carried out and the material all carefully sifted. This I had no opportunity of doing in any case, as my geological work did not admit of my devoting sufficient time for close research. In many of the settlements, numerous small stones differing in kind from the local rock were found,

such as agates, chert, jasper, lydian stone, and quartz of different kinds; these had doubtless been collected to be converted into flakes and small scrapers, or, possibly, simply because of their bright and pleasing colours. In three places, stone beads of good workmanship were found; of these two were of reddish carnelian, two of delicate green quartzite of extremely fine texture, and one of shell. Lastly, I must not omit to mention several pieces of tolerably soft deep red hæmatite which had been rubbed down to smooth surfaces on one or more sides and in all probability been so rubbed down to furnish a pigment for decorative purposes, very likely as rouge for the cheeks of the Neolithic ladies. The North Hill at Bellary yielded several of these, and I noticed other pieces of hæmatite which had evidently been brought from a distance for some similar purposes, but had never been used.

Of the dwellings of the Neolithic folk, no positive traces remain; from which it may reasonably be inferred that they were of rather perishable character, like the thatched huts with mud walls of so large a proportion of the lower classes among the present inhabitants of the Southern Deccan. It is useless to speculate about what they may have been like. Small roofless huts, with rough mud and stone walls, exist in plenty at some of the many settlements, but in each case there were manifest signs of comparatively recent occupation of the place, and in no case did I find any implement or fragment of antique pottery inside such huts, although I carefully searched many of them.

Mr. Fraser discovered two settlements of the Neolithic people, those of the North Hill at Bellary and the south side of the Peacock Hill; and, since December 1884, I have found over forty others, large and small. Of these, I have prepared a list, which will be found further on. I have indicated the principal ones on the map accompanying this paper, from which will be seen how they cluster together chiefly in the neighbourhood of Bellary. Of the forty odd I have enumerated, ten, judging them by the number of implements they yielded, may be reckoned as first class, eight, as second class, and the remainder, as third class.

The respective positions of these different settlements are of importance and show that the old Stone-folk had a very decided preference for occupying commanding positions which were defensible against their enemies. These they seem to have found preferably on the granite-gneiss hills so numerous met with in the Bellary-Anantapur country. Not a single one of their settlements is found on the non-granitoid hills in the immediate neighbourhood, though many of these are as lofty, or much more so. I have given much careful consideration to this important point, and think that four good and sound reasons appear to have prevailed with the stone-folk when selecting the sites for their



settlements. Doubtless, other considerations may have influenced them, but they are not so obvious. The four which seem to have mostly influenced them were:—1. The more perfect isolation of the granite-gneiss hills, which mostly rise singly out of the plains, or, if in clusters, are yet individually detached and therefore more suitable for defence than posts on continuous ridges, such as are generally formed by the schistose rocks. Some of the granite-gneiss hills are nearly perfectly castellated by the disposition of the rock masses. 2. Rock shelters of great efficiency and comfortable terraces are to be found in numbers on many of the granitoid hills, but hardly ever on the schistose hills. 3. The collection of rain water and its storage would, from the nature of the ground, be much easier on the average granitoid rock than on the average schistose hill. 4. The schistose hills are, in very many cases, generally, in fact, surrounded by a heavy and broad talus most detrimental to easy agricultural work. The granitoid hills, on the contrary, form, as a rule, no great talus, but rise up straight out of the great cotton-soil plains, so that the Neolithic field labourers could have been quite close to places of refuge in case of attack from other tribes, and yet have been able to carry on their agricultural work.

I only know one *bonâ fide* settlement situated on the schistose rocks, and this is in the open plain far away from any hill. This is near Sanawaspuram 16 miles N. by E. of Bellary.

Yet another reason in favour of the granitoid hills is that, from the many bare sheets and scarps of rock which they show, they do not bear continuous slopes of long grass capable of being burnt over, as are the uninterrupted slopes of the schist hills. The absence of these great grass spreads was a great element of safety for the thatched huts on the hills.

I referred above to the remarkable mound of slaggy cinders occurring on the Budi Kanama pass, 16 miles west of Bellary, which mound had been described by various writers 40 or 50 years ago, one of them supposing it to be a volcanic ash cone! Captain Newbold, the most eminent amateur geologist and archæologist that South India has known, was another of these writers, and he favoured one of the native theories accounting for the origin of the mound, namely, that it was the result of a great funeral pyre on which all the dead killed in some great local battle had been cremated. Another native legend ascribes this mound to the death of Edimbassurah, a great Rakshas, or giant, killed by Bhimasainah, one of the Panch Pandus. Captain Newbold rather opposed another hypothesis that the mound might be due to the celebration of some great holocaust of animals offered on the occasion of some great religious celebration. The proper way to test the real

origin of this much debated mound would of course be to cut a section through it, a work which ought to be executed by the Archaeological Survey. The mound is certainly not the product of one huge burning, the cinder occurring in distinct layers 2'—4' thick with thin layers of made ground between them. It was from these that the celts and various mealing-stones and corn-crushers I found there were washed down by action of rain. I noticed no other traces of residence, nor any at all of a manufacture of celts. I cannot help inclining to the holocaust theory, for, in other cases (notably at the important settlement on Kuri Kuppi hill and at the quadrangular cinder camp west of Sanawaspura 61 miles N. by E. of Bellary), the number of mealing-stones and corn-crushers was very large, many of them being imbedded in the cindery mass. Bones of animals, too, mostly bovine, occur frequently. Fragments of pottery too are very numerous. Many of the marrow bones had been broken as if to extract the marrow. I did not notice a single human bone in any one case, or any evidence pointing to a ceremonial cremation.

The cinder mounds at Sanawaspur, and the larger of the two west of Halakundi and near the foot of the Copper Mountain, form quadrangles about sixty yards square by external measurement, the sides making a low breastwork much trodden down and cut by rain action. I do not think they exceed 5 feet in height above the general level, for I noticed no places that I could not overlook.

Except in the absence of the signs of manufacture of implements, these two quadrangular camp-like piles of cinder showed much the same style of things as occurred on many of the larger ash-covered terraces in the typical hill settlements. Celts and chisels were probably less numerous in the camps than on the hill terraces, but mealing-stones and corn-crushers are quite as common, and broken pottery is not rare. At the Sanawaspuram camp, I obtained fragments of two small bottle-shaped earthenware vessels.

At the North Hill, Bellary, and several other settlements, I found numerous lumps of hæmatite which did not appear to have been collected for conversion into any implement, for which purpose they were evidently unfit either from their small size or softness, and with them, here and there, were pieces of iron slag, which may not improbably be traces of the local manufacture of iron. Similar indications of an iron-smelting industry were found in considerable quantity by my friend Mr. C. Cardew, Superintendent, Locomotive Department, Bellary-Kistna State Railway, in the great Neolithic settlement which formerly existed on the high ground south-west of the Guntakal Railway junction. Strongly confirmative of the existence of the iron industry at Bellary is to my ap-

prehension the existence of a small brown earthenware tuyere which I found on the east side the Fort Hill at Bellary among a large quantity of broken pottery. This tuyere is now in my collection.

Of special interest are two implements found respectively by my friends Messrs. Boys and Cardew, the first a ring-stone found on Bellary Fort Hill, the second a wooden comb excavated from a thick bed of pure white ash in the Guntakal settlement.

The ring-stone, of which Mr. Boys found one half, was a very large one of rather oval shape externally, but the well-drilled central hole is perfectly circular.

A very fine collection of celts in various stages of manufacture and of other implements was made by another friend, Mr. Henry Gompertz, Deputy Superintendent, Madras Revenue Survey, on the north side of the Bellary Fort Hill, and on the Sangankal hills between the Bellary hills and Kapgul Hill.

Up to the present, no celt has been found in South India which has been drilled for the insertion of a handle, as were many European-made axes and hammer-heads. A very fine celt (in my collection) which was found on the Shevaroy hills shows, however, the commencement of a drill-hole on each of the broad sides. These holes are exactly opposite each other and an inch or more from the middle towards the cutting edge of the implement. The Celt-folk were, however, well acquainted with the art of drilling small objects in hard stone, as is shown by the well executed perforations of the carnelian and quartzite beads already mentioned.

A specimen (also in my collection) from one of the Bellary settlements shows the general outline of a typical celt, but the broad end has been left quite thick instead of being ground to an edge, while the pointed end has been ground to a narrow chisel edge transverse in direction to that which should have been the broad cutting edge. There are no signs of use on this specimen, which, so far as I know, is quite unique; and I am unable to imagine for what special purpose it may have been prepared.

A few specimens of whetstones, or hones, have been found in the Bellary settlements, which may perhaps have been used to give the last final edge to specially choice celts. I have two such in my collection which show strong marks of use. The marks are rather semicircular, and just such as would be produced by whetting the rather rounded edge of a celt. Mr. H. Gompertz found such a stone of rather flat shape lying on a piece of rock under a good rock shelter on the north side of Bellary Fort Hill. On the whetstone lay a small celt exactly as if it had been put down suddenly and never taken up again by the workman.



At Koganur, 7 miles E. S. E. of Davangere in Mysore, I picked up from the surface a large lump of stone (quartzite, if I recollect right) one end of which had been deeply ground into with such semicircular strokes. The stone had also been very well drilled right through the centre with a narrow hole a little more than an inch in diameter. No other traces of Neolithic remains accompanied this hammer, which, if fixed to a strong handle, must have formed a most formidable weapon, as the head weighs several pounds. By whomsoever it may have been made, the artificer had a very good knowledge of the manner in which to drill a very hard stone.

A remarkable fact with reference to the varieties of weapons and tools made by the Neolithic people of South India is the absence hitherto of any traces of their having manufactured stone arrow-heads, such as are frequently found in other countries occupied by tribes who had attained to a very similar grade of civilization. It is hard to imagine that the Neolithic people of the Deccan were unacquainted with the use of the bow prior to the first introduction of iron. That they used brass after becoming acquainted with iron is clearly proved by the discovery of unquestionable iron arrow-heads in the Pátpád cache and in many prehistoric graves in the South. With an abundance of stone, such as agate, chalcedony, lydian stone, jasper, and chert, fit for making arrow-heads, it is certainly most remarkable that no true worked arrow-heads have yet been found, and it is most desirable that all prehistoric explorers in India should pay special attention to this point. I have found some few flakes of chert and jasper that might have been used to tip an arrow, but I have found and seen none that were obviously prepared for that purpose.

I give here a list of the localities in the Bellary-Anantapur country at which the Neolithic folk have left traces of their residence and modes of life.

*List of Settlements with their direct distances from Bellary Fort.*

*First Class.*

1. Kapgal, N. side of hill...	5 miles N. E.	of Bellary.
2. Guntakal Junction .....	30 „ E.	of do.
3. Budihal Hill.....	24½ „ S. E.	of do.
4. Iddapinkal Fort Hill .....	19 „ S. E.	of do.
5. Ditto Main Hill....	18½ „ S. E.	of do.
6. Yelapadugu Hill .....	20½ „ S. E.	of do.
7. Daroji Hill .....	18 „ N.W. by W.	of do.

8. Kuri Kuppa Hill ..... 18 miles W. N. W. of Bellary.
9. Gadiganur Hill, foot of 21½ „ W. N. of do.
10. Latwaram Hill..... 28 „ S.E. by E. of do.

*Second Class.*

11. Bellary North Hill ..... — — — —
12. Bellary Fort Hill ..... — — — —
13. Saudamma Konda (hill) 3½ „ N. E. of do.
14. Sanarasama Konda (hill) 3¾ „ N. E. of do.
15. Ram Durg Fort and Hill 24 „ E. N. E. of do.
16. Karamukalu Hill ..... 18½ „ S. E. by E. of do.
17. Tornagul Hill..... 16 „ W. by N. of do.

*Third Class.*

18. Kapgal S. E. side of hill 5 miles N. E. of Bellary.
19. Halakoté N. Fort Hill ... 31½ „ N. of do.
20. Ditto South Hill ..... 31 „ „ of do.
21. Manakurti Hill ..... 33 „ N. E. 3° N. of do.
22. Hospett Hill (Alur Taluq) 26 „ N. E. 5° N. of do.
23. Hatti Bellagal Hill ..... 24 „ N. E. of do.
24. Nagaradoni fort Hill..... 25 „ E. N. E. of do.
25. Chippagiri Hill..... 27 „ E. by N. of do.
26. Yerragudi Hill..... 42 „ E. by 5° S. of do.
27. Wajra Karur (low hill)  
W. of..... 31½ „ E. S. E. of do.
28. Hill east of great dyke  
east of Urava Konda 32 „ S. E. by E. of do.
29. Urava Konda (hill) ..... 26½ „ S. E. by E. of do.
30. Koté Koté West Hill ... 16½ „ E. S. E. of do.
31. Beder Bellagal Hill ..... 6 „ W. by 5° S. of do.
32. Kolagal East Hill..... 3½ „ N. W. of do.
33. Ditto West Hill ..... 6 „ N. W. of do.
34. Hill N. of Badanhatti... 13 „ N. N. W. of do.
35. Elgunda Hill..... 24 „ E. S. E. of do.
36. Rupangudi Fort Hill ... 13 „ S. E. of do.

*List of Cinder Mounds and Camps.*

37. Budi Kanama or Budi-  
gunta ..... 13½ miles W. 5° N. of Bellary.
38. Hala Kandi Camp and 1  
mound ..... 5 „ S. W. by S. of do.
39. Sanawasapuram Camp... 20 „ N. 5° E. of do.

*Smaller Cinder heaps.*

- |                              |                            |
|------------------------------|----------------------------|
| 40. Rocks S. of Kapgal... .. | 4½ miles N. E. of Bellary. |
| 41. Kurikuppa Hill .....     | 18 „ W. N. W. of do.       |
| 42. Kakballa hill fort of }  | 25 „ W. 5° N. of do.       |
| 43. Ditto do. Saddle }       |                            |

Captain Newbold mentions some cinder mounds on Kapgal Hill which if still in existence escaped my attention. The great cinder mound at Nimbapuram a little to the N. E. of the ruins of Hampi (Vijayanagar), I have not yet visited. Like the Budikanama mound, it is regarded by the natives as the cremation heap of one of the great Rakshasas. It is singular that Newbold, though so keen an observer in many branches of science, should have so completely overlooked the celts and many other Neolithic implements lying so freely scattered about on Kapgal Hill and not unfrequently at Budikanama. It is more than probable, from his descriptions of the geology of the Bellary country, that he must have examined pretty closely many of the other hills in that quarter where the Neolithic settlements now referred to occur. Only one explanation seems possible to account for so able an archæologist missing these finds, namely, that, his eye being untrained and his attention not being awake to this class of prehistoric facts, he passed them by unheeded. It was not till many years after his time that the great stir in the scientific world caused by the recognition (by Lyell, Prestwich, Evans, Falconer, and the great leaders among French and German geologists) of the true value of Boucher des Perthes Palæolithic finds extended to India, and was followed by the discovery of the Palæolithic quartzite implements of Palavaram and the Attrampakkam nullah, which really started prehistoric research in this country.

The following list enumerates the varieties of implements made of stone which have been found in the Bellary-Anantapur Neolithic settlements.

1. Celts.....
  - a. body narrow and round—butt end pointed.
  - b. do. do. and do. do. blunt.
  - c. do. do. and flat do. broad.
  - d. do. broad and round do. pointed.
  - e. do. do. and flat do. broad.
  - f. battle-axe type do. blunt.
  - g. cutting edge, an abrupt wedge.
  - h. do. a rounded wedge.
  - i. whole body worked square.
2. Chisels...
  - a. body long and narrow.
  - b. do. much wider than cutting edge.
  - c. do. increasing backward to a thick butt; edge transverse to general plane of body.



3. Hammers *a.* round.  
*b.* square.
4. Ring-stones.
5. Pestles.
6. Corn-crushers, ... globular,  $1\frac{1}{2}$ "— $2\frac{1}{8}$ " diameter.
7. Bone-crushers, ... do.  $3\frac{1}{2}$ "—5" do.
8. Strikers, ... *a.* thick type.
9. Mealing-stones, ... *b.* flat type.
10. Slyking-stones, ... (slick-stones).
11. Sharpening-stones, ... (hones).
12. Scrapers, ... *a.* heavy.  
*b.* light.  
*c.* circular.
13. Worked flakes.
14. Unworked flakes, ... triangular, "knife type," &c., &c.
15. Cores, small, ... Jabalpur type.
16. Flakes from small cores.
17. Beads.
18. Reddle-stones.
19. Stone vessels, ... bowl-shaped.
20. Mealing places, ... deep, on rocks or detached blocks.
21. Polishing places, ... do. do.
22. Edging grooves, ... do. do.

The variety of stone selected for different purposes was considerable as will be seen by the following lists.

*Varieties of stone selected for use.*

Granite... ..	for mealing-stones and corn-crushers.
Granite gneiss... ..	<span style="font-size: 2em; vertical-align: middle;">{</span> mealing-stones, mealing-troughs, polishing and edging places on the rocks, deep troughs for water.
Epidote granite... ..	<span style="font-size: 2em; vertical-align: middle;">{</span> these were evidently very favourite stones and often fetched from long distances.
Gneiss (green)... ..	
Greenstone of several varieties.....	<span style="font-size: 2em; vertical-align: middle;">{</span> celts, scrapers, mealing-stones, corn-crushers, strikers, hammers, pestles, flakes.
Quartz very rarely used...	corn-crushers and scrapers.
Siliceous breccia of Dharwar age, very rarely used .....	mealing-stones.

Hornblende schist (a } very silky variety)... }	for	{ celts of the flat type, very commonly at Gadiganur, elsewhere very rarely. Pestles.
Quartzite... ..	„	{ Sharpening stones, mealing-stones, beads (very rarely).
Hæmatite, jaspery, ... ..	„	mealing-stones, corn-crushers.
Jasper, red.....	„	cores (rare).
Hæmatite, earthy red...	„	pigment.
Agate.....	„	cores and flakes.
Carnelian.....	„	beads.
Chert mostly of Lower } Vindhyan age... .. }	„	cores, flakes, flake knives, scrapers, strikers.
Lydian stone. ...	„	flakes and scrapers.

The bulk of the neolithic pottery is of very high class for Indian pottery, for, though it will not at all compare with Etruscan and Greek pottery, yet many specimens have been met with showing great elegance of form with very superior quality of the clay worked. As it is impossible to enlarge intelligibly on such subjects, unless they could be illustrated by well-executed illustrations, I will make my remarks on this subject very brief, reserving a full account of my pottery finds till some future time when I shall have had them built up into shape and figured. The quantity of broken pottery found lying about in the old settlements is very great, and affords in many cases abundant proof either that the population was very large, or else that the period of residence represented was of great duration. I think all the pottery collected or examined by me at the different settlements was wheel-made. In point of size and shape, the articles found can only be described as legion. The patterns of ornament employed were also extremely numerous. I have lately begun to collect fragments of sufficiently large size to show the special patterns ornamenting them, and I can only express my surprise at the great variety of patterns the old potters had invented. It is the exception rather than the rule to find the same pattern used twice over. Many of the patterns are so pretty as to cause very great regret that they are known from fragments only.

None of the vast number of specimens I have examined belonged to angular mouthed vessels; all without exception were round, but, with that limitation, they represented all possible varieties of shape, from extremely shallow plates up to rather elongated oval vessels of great size and thickness of walls, and to narrow-necked bottles.

I noticed no vessel with handles either external or internal,\* but

\* The internal handles for suspending vessels over a fire without risk of the flames touching the suspending ropes, such as were used by the North American

a tolerable number were found which were furnished with legs, probably three or four in number. In many settlements, I found fragments of flat saucer-like vessels perforated with many holes placed close together. These had evidently constituted strainers of some kind.

I found several small, rather rudely circular, flat discs of pottery about 2 inches in diameter, the edges of which had been coarsely ground. These were very probably lids to lay upon the mouths of vessels requiring to be closed; such discoid lids are used occasionally now-a-days for the same purpose.

The pots ornamented with a raised fillet marked with impressions greatly resembling those to be made by a human finger\* found in the Yerra Zari Gaffi (Cave) struck the diggers whom I employed as very strikingly different from the pottery made locally at the present time, and they remarked upon this very intelligently. Indeed, the new and strange patterns of the old pottery called forth many more remarks than any of the other finds we made in that quarter.

In no case did I find any sign of the localities where the potters had followed their trade. These were probably well removed from the settlements (whether the latter stood on the hills or in the plains), near to the rivers, where suitable clays would be likely to be found.

§. 9. While camped at Halakundi 5 miles south of Bellary along the Bangalore road in December 1884, I obtained some 20 or 30 chipped Palæolithic implements made of jaspersy hæmatite schist; they are all of rather small size but of the typical shapes, oval, pointed oval with two or three of the square-edged hatchet-shape so specially characteristic of the south of India. They were collected from the surface of a ploughed field which lies on a great fan or cone of dejection of detritus (chiefly hæmatite and hornblendic schists) formed by one of the numerous torrents coming down from the north-eastern flank of the Sugadevi belta or Copper mountain, the highest part of the band of Dharwar rocks lying south of Bellary. I am unable to offer any further evidence as to their origin at present, but they are in type utterly different from the rudest of the Neolithic implements, and they do not occur intermixed in any place that came under my notice.

Similar implements occur at distant intervals in the talus fans along the Copper mountain ridge westward. Two good specimens were

Indians, have not yet been found by me, but they may have been used. I have one piece of thick pottery which might have served in such capacity. It would be most interesting if it were to be established that the old potters of the two continents had both hit on this most ingenious expedient.

\* I am doubtful whether the impressions in question are really those of human fingers, for in none could I detect the impression of the edge of the nail.



obtained at Joga, a small village at foot of the northern ridge of the Sandur basin, 24 miles west of Bellary. The majority of the specimens have been a good deal worn by rolling. I have had no opportunity of studying the circumstances under which they occur in the gravel fans in question, and merely wish to record the finds.

The theory has been advanced that the implements of rude Palæolithic type are really the agricultural tools of the people, who, for other domestic or warlike purposes, manufactured the various wholly or partially polished implements generally classed as Neolithic. This theory will, however, not fit in with the facts observed in the Neolithic settlements above described. Nearly all the implements of Palæolithic type found in the Bellary country consist of jaspery hæmatite, only a very few of quartzite. Implements of these materials and of the older type are extremely rare in the various settlements I have searched; only two or three in all were found to the hundreds and hundreds of specimens of the newer types. It is impossible that the manufacture of hæmatitic jasper and quartzite implements should have been carried on to even a very moderate extent without leaving behind piles of splinters and flakes of the red and purple and brown stones of which they were made. These flakes and splinters would be quite as conspicuous on the granitoid hills as the green and black ones left in the preparation of the celts, chisels, and hammers made of greenstone of different kinds. The latter kind of splinters and flakes occur very largely, the former not at all. Furthermore, if the hæmatite and quartzite implements of the so-called Palæolithic type were the agricultural tools of the Neolithic people, how comes it that the former are not found largely in broken or at least used condition around the hills inhabited by their makers? It is most unlikely that the people left the rich black soil tracts around their strong places uncultivated, and yet, if these were cultivated by the particular form of tools they are assumed to have used, remains of the latter must assuredly be met with here and there near the strong places in question. As a matter of fact they have not been found in such localities, and, from their absence, only one inference seems reasonable, namely, that they were not used as supposed by the Neolithic people, but belonged to another and older race. In none of the different lateritic gravels and other deposits which have yielded typical Palæolithic implements in the South has the faintest trace of any polished implement of any kind, or of any pottery, however coarse, been found. While the deposits in which the Neolithic remains occur cannot by any possibility be treated as geological formations—they are all of them manifestly accumulations of matter entirely due to direct human agency,—and, geologically speaking, date only from yesterday.

To my mind nothing can be clearer than the existence of a great break in time between the Palæolithic and Neolithic Periods in South India. Whether this great break will ever be closed in by future archæological discoveries remains to be seen.

XIX.—*Étude sur les Arachnides de l'Asie méridionale faisant partie des collections de l'Indian Museum (Calcutta).*—Par M. E. SIMON, de Paris. Communicated by THE SUPERINTENDENT OF THE INDIAN MUSEUM.

[Received September 22nd ;—Read November 2nd, 1887].

## II.

ARACHNIDES RECUEILLIS AUX ILES ANDAMAN PAR M. R. D. OLDHAM.

### Fam. Attidæ.

#### 1.—CYTÆA ALBOLIMBATA, *sp. nov.*

♀. Long. 7mm. Cephalothorax crassus convexus postice attenuatus lævis, niger, in medio dilutior et rufescens, obscure rufulo-pubescent, vitta marginali latissima postice interrupta crasse albo-pilosa cinctus, parte cephalica in medio fulvo albidoque pilosa et parte thoracica vitta media postice abbreviata et acuta alba notatus. Oculorum pili supra fulvi infra oculos albidii. Pili clypei crassissimi albidii. Oculi antici parum disjuncti in linea parum recurva. Oculi ser. 2æ vix ante medium (inter oculos laterales anticos et medios posticos) siti. Oculorum series 3a cephalothorace haud vel vix angustior. Abdomen oblongum, supra nigrum et squamulis micantibus parce ornatum, in parte basilari sinuosa albo-marginatum et lineis mediis quatuor albidis sinuosis et fere inordinatis notatum et pone medium linea transversa alba valde dentata sectum, venter simpliciter fulvo-pubescent. Pedes, præsertim antici, breves et robusti, fulvo-ravidi, femoribus tibiisque ad basin atque ad apicem, patellis metatarsisque ad apicem nigro fulvove annulatis, partibus fulvis crasse albo-pilosis, tibiis anticis patellis non multo longioribus, aculeis validis et numerosis: patellis cunctis biaculeatis, tibiis metatarsisque anticis aculeis inferioribus et lateralibus instructis. Chelæ robustæ fusco-rufulæ, læves, albido-hirsutæ, margine inferiore sulci dentibus geminatis binis instructo. Vulvæ plaga antice fovea parva semicirculari, postice plagula rufula lævi et plana, recte transversa et utrinque rotunda notata.

Port Blair.

*C. sinuata* Dolesch. et *C. alburnæ* Keys. sat affinis, differt cephalo-